Helminthological Abstracts

Volume 60

Prepared by

C·A·B INTERNATIONAL
DIVISION OF ANIMAL HEALTH AND MEDICAL PARASITOLOGY
1991

ISSN 0957–6789

© C·A·B International, 1992

All rights reserved. No part of this publication may be reproduced in any form or by any means, electronically, mechanically, by photocopying, recording or otherwise, without the prior permission of the copyright owner.

published by

C·A·B International
Wallingford
Oxon OX10 8DE UK

The information contained herein, including any expression of opinion and any projection or forecast, has been obtained from or is based upon sources believed by us to be reliable but is not guaranteed as to accuracy or completeness. The information is supplied without obligation and on the understanding that any person who acts upon it or otherwise changes his/her position in reliance thereon does so entirely at his/her own risk.

printed by

Unwin Brothers Ltd, The Gresham Press, Old Woking, Surrey, UK
A Member of the Martins Printing Group

C·A·B INTERNATIONAL INFORMATION SERVICES
Wallingford, Oxon OX10 8DE, UK
Telephone: Wallingford (0491) 32111

Helminthological Abstracts

A monthly journal compiled from the CAB ABSTRACTS database.
Produced by the DIVISION OF ANIMAL HEALTH AND MEDICAL PARASITOLOGY

Editor

C.W. Gordon BA, MIInfSc

Editorial Advisory Board

Professor R.C. Anderson (Guelph, Canada)
Professor T. Kassai (Budapest, Hungary)
Dr. L.F. Khalil (St. Albans, UK)
Professor R.C.A. Thompson (Murdoch, Western Australia)
Professor J.D. Smyth (London, UK)

STAFF

Head of Division

G.D. Phillips BSc, BVSc, PhD, MRCVS

Head of Department of Animal Health
M.R. Hails BSc, DipAgricEcon, MIInfSc, MIBiol

Head of Department of Medical Parasitology
C.W. Gordon BA, MIInfSc

Scientific Information Officers

Entomology
J.A.H. Brooks BSc, MSc, DIC, FRES
A.W.R. McCrae MA, PhD, MIBiol, FRES
L. Phillips BSc, MSc

Parasitology
M. Cooney BSc
C. Docherty BSc
N.M. Hamilton BSc
P.M. Neenan BSc, HDipEd
S.E. Verrall BSc

Mycology
S. Bamford BSc, PhD
J.L. Halsall MSc, MIInfSc

Veterinary Sciences
H.B.A. Darbyshire BVSc, PhD, FRCVS
S. Glowka BVSc, DVM
M.G. Gotts MA
C.D. Johnson CChem, MRSC
Z. Pinter BVSc, DVM
R. Taylor BSc, MIBiol

Clerical Staff

V.J. Tilling

Clerical Assistants

A.H.W. Crutcher
S. Moore

Data Entry Staff

Manager D. Mitchell

C. Bristow
H. Burdess
B. Dodd
J. Gillet
P. Hawley
S. Hawkins
M.Mills
M. Prince

Helminthological Abstracts

Contents

Volume 60

Animal hosts	15	75	119	173	221	227	325	375	431	481	523
Man	15	75	119	173	221	277	325	375	431	481	523
Other primates	19	80	121	177	225	280	328	–	434	485	527
Equines	19	80	122	177	225	280	328	382	434	485	528
Ruminants	19	81	122	177	226	281	329	382	434	485	–
Pigs	20	82	–	179	227	283	330	382	436	486	529
Carnivores	20	83	124	180	227	283	330	383	436	487	529
Rodents, Insectivores and Lagomorphs	22	83	125	181	228	284	331	383	437	487	530
Marine mammals	22	–	–	–	229	–	–	–	–	–	–
Other mammals	–	84	125	182	–	284	–	–	437	–	531
Birds	23	84	125	182	229	284	332	384	437	487	531
Reptiles	23	84	126	183	230	285	332	384	438	488	–
Amphibians	24	–	126	183	–	285	333	384	438	–	531
Fish	24	84	126	183	230	285	333	384	438	488	531
Invertebrates	–	85	127	184	231	286	334	386	440	490	–
Mixed groups	25	85	–	184	231	287	334	386	440	490	–
General reviews	26	86	127	185	232	287	334	387	440	490	532
Economic aspects	–	–	128	185	232	288	–	387	440	–	–
Associations	–	86	–	185	232	288	335	387	441	–	532
Morphology, taxonomy and nomenclature	26	86	128	185	232	289	335	387	441	491	533
Monogenea	26	–	128	185	232	289	335	387	441	491	533
Aspidobothria	27	–	–	–	–	289	336	–	441	491	–
Digenea	27	86	128	186	234	289	336	388	441	492	533
Cestoda	29	88	130	186	236	290	336	389	443	492	535
Acanthocephala	31	–	131	187	238	–	337	–	–	493	–
Nematoda	31	89	131	187	238	290	338	390	444	493	535
Nematomorpha	–	–	–	–	–	–	–	–	–	–	–
Miscellaneous	33	91	133	188	239	291	–	391	–	–	–
Immunobiology	33	91	133	189	240	291	339	391	445	494	536
General	33	91	133	189	240	291	339	391	445	494	536
Antigens and Immune Responses	33	92	133	189	240	292	339	391	445	494	537
Immunodiagnosis	39	96	137	193	244	293	345	396	450	497	545
Immunity and Resistance	40	97	138	194	245	294	347	397	451	498	547
Vaccination	42	97	141	195	247	295	348	398	452	499	548
Immunopathology	43	97	142	195	247	295	349	399	453	500	549
Pathology	43	98	143	196	248	296	349	400	454	501	551
General	43	98	143	196	248	296	349	400	454	501	551
Pathogenesis and Pathogenicity	45	99	145	197	250	298	352	401	456	503	552
Haematology	46	–	–	198	251	298	352	–	456	503	553

Biochemistry, Molecular Biology and Physiology	46	100	146	198	251	298	352	402	456	504	553
General	–	–	–	–	–	–	–	402	–	–	–
Biochemistry	46	100	146	198	251	298	352	402	456	504	553
Cytochemistry	–	–	–	–	253	300	356	404	459	505	554
Molecular Biology	49	101	148	199	253	300	356	405	459	505	554
Molecular and Biochemical Taxonomy	51	101	149	–	254	300	359	406	459	505	554
Physiology	51	101	150	200	254	300	359	406	460	505	–
Neurobiology	52	102	150	200	254	301	360	406	460	506	–
Ecology and behaviour	52	102	151	200	254	301	360	407	461	506	555
Host–parasite relationships	53	102	151	201	255	302	361	408	462	507	555
Geographical distribution	54	102	152	203	256	303	–	409	462	507	557
Epidemiology	54	102	152	203	256	304	362	409	462	507	557
General	54	102	152	203	–	304	362	409	462	507	557
Transmission	56	105	154	204	258	306	363	412	465	508	559
Zoonoses	59	106	157	206	260	307	365	415	467	–	561
Control	59	106	157	206	260	307	365	415	467	510	562
General	59	106	157	206	260	307	365	415	467	510	–
Treatment	60	106	158	207	260	308	365	416	468	510	562
Drug Resistance	65	110	162	214	265	315	368	420	472	512	567
Anthelmintics	66	111	163	214	266	316	368	421	472	512	567
Vectors and Intermediate Hosts	67	112	166	216	268	318	370	423	473	515	570
Biological Control	67	113	167	–	268	318	371	424	474	516	570
Other methods	68	113	167	216	269	319	371	424	474	–	–
Techniques	68	114	168	217	269	319	371	425	474	516	570
Diagnosis	70	115	169	217	270	320	372	425	476	517	571
Life–history	71	115	170	218	270	321	373	426	476	518	572
Genetics and Evolution	72	116	170	219	272	322	373	427	478	519	573
Hirudinea	72	116	171	219	273	322	373	428	478	519	573
Unclassified	73	117	171	219	273	322	–	428	478	519	573
Reports	–	–	172	–	273	–	–	428	–	–	574
Conferences	–	117	172	–	274	322	374	428	478	519	574
Books	73	117	172	219	274	322	374	429	479	520	574
AUTHOR INDEX	577										
SUBJECT INDEX	605										
List of source journals	i										

REVIEW ARTICLE

Schistosomiasis in Saudi Arabia: Current Status. By Dr A. M. Ghandour 1

READERS GUIDE

The purposes of the citations and abstracts are to enable readers to: identify documents containing information of relevance and importance to their interests; keep themselves informed of the progress of current work; decide whether or not they need to see original documents. Photocopies of most items abstracted are available through CAB International's Document Delivery Service (see request form in this journal). The titles and abstracts in this journal have been added to the CAB ABSTRACTS database which is available for current and retrospective online searches.

In a typical entry the name(s) of the author(s) is followed by the title of the paper in English. If the original paper is not written in English then a translation of the title is enclosed in square brackets and the title in the original language follows (except for Arabic, Chinese, Japanese, etc). Cyrillic characters are transliterated for book titles but not for titles of papers. The unabbreviated journal title is given next (transliterated or romanised if necessary). The year of issue in round brackets, volume number, part number in round brackets, and first and last page numbers of the article complete the basic citation.

Supplementary information, given in square brackets, includes the language of the paper (see abbreviations) and language(s) of additional summary(ies) and the number of references cited in the paper.

The address cited for an abstract normally refers to the first author and is usually the place where the work was carried out.

Edited authors summaries are used for the abstracts if suitable. Special efforts are made to provide informative abstracts of papers in less commonly used languages and in publications which cannot easily be obtained. In consulting an entry the reader should remember that the title of the paper is an integral part of the abstract and may include information necessary for its full comprehension. Names or phrases in square brackets within a title or abstract have been added during abstracting and do not appear in the original document.

ABBREVIATIONS FOR LANGUAGES

An initial capital letter denotes the language of the paper, an initial small letter the language of a summary.

Af Afrikaans
Al Albanian
Ar Arabic
Az Azerbaijan(i)/ Azerbaidzhani/ Azerbaidzhanian
Be Belorussian
Bg Bulgarian
Ch Chinese
Cs Czech
Da Danish
De German
Ee Estonian
En English
Eo Esperanto
Es Spanish
Fi Finnish
Fr French
Gr Greek
He Hebrew
Hi Hindi
Hu Hungarian
In Indonesian
Is Icelandic
It Italian
Ja Japanese
Ko Korean
La Latin
Li Lithuanian
Lv Latvian
Ma Macedonian
My Malay/Bahasa Malaysia
Nl Dutch, Flemish
No Norwegian
Pe Persian
Pl Polish
Pt Portuguese
Ro Romanian
Ru Russian
Sh Serbo-Croat
Sk Slovak
Sn Slovenian
Sv Swedish
Ta Tajik/Tadzhik
Th Thai
Tr Turkish
Uk Ukrainian

INTERNATIONAL INSTITUTE OF PARASITOLOGY

An Institute of CAB International

395a Hatfield Road, St Albans, Herts AL4 0XU, UK

Telephone: St Albans (0727) 833151 (International +44 727 833151)
Telex: 9312102254 IP G
Telecom Gold/Dialcom: 84: CAU011
Fax: (0727) 868721 (International +44 727 868721)

Director: R.L.J. Muller, PhD, DSc, FIBiol, CBiol

Unit Heads: Helminth Taxonomy (and Assistant Director): L.F. Khalil, PhD, FIBiol, CBiol
Plant Nematode Taxonomy: M.R. Siddiqi, PhD, DSc, FLS, FIBiol, CBiol
Tropical Plant Nematology Advisory and Research: J. Bridge, MSc, PhD, CBiol
Tropical Parasitic Diseases: S. Townson, MSc, PhD

The International Institute of Parasitology (IIP), founded in 1929, has a staff of about 35 and provides taxonomic identification, research, consultancy and contract services to world agriculture and medicine. The Institute is an international centre for the systematics of parasitic helminths of animals and man, and plant parasitic and entomophilic nematodes. Publications include research papers, books, monographs and keys (details on request).

Institute staff are active in project work in many parts of the world, acting as consultants or researchers for a variety of international and national agencies. IIP staff contribute as advisers to field and survey work, and provide an authoritative identification service for the nematodes and helminths collected.

Identification Services

IIP provides an authoritative identification service to agricultural, biological and medical scientists throughout the world. The service handles plant-parasitic and entomophilic nematodes and helminth parasites of animals and man. The services are backed by well documented and extensive reference collections including those of several eminent helminthologists; living cultures of plant parasitic nematodes are maintained in the IIP glasshouses.

IIP's team of specialists are also involved in research including taxonomic revision of economically important groups of helminths and plant parasitic nematodes and the production of identification aids.

Details of charging and advice on collection, preservation and despatch of specimens for identification are available on request. The identification service is provided free of charge to non-commercial users in CABI member countries, and at moderate cost to users in non-member countries and in commercial organisations.

Tropical Plant Nematology Advisory and Research Unit

The Unit provides an advisory service to countries in the sub-tropics and tropics, as an adjunct to the identification services provided at the Institute. It gives practical information and advice on the economic importance and control methods that can be employed on nematodes identified. Staff are available for consultancies on nematode problems and can undertake surveys of individual crops or regions, plan workshops or give in-country advice on existing nematode projects and problems. Staff are engaged in funded research on tropical nematodes in glasshouses and laboratories at the Institute, which also provides facilities for visiting research workers. The Unit is part of a 'Research Group for Nematodes in Tropical and Subtropical Agriculture' formed between the Institute and the AFRC Institute of Arable Crops Research, Rothamsted, UK.

Tropical Parasitic Diseases Unit

The Unit carries out research projects directed towards the prevention and treatment of human tropical parasitic diseases. Research at IIP has focussed on onchocerciasis and lymphatic filariasis and their arthropod vectors, and is funded by major international agencies such as WHO and the Edna McConnell Clark Foundation. These projects are part of a world-wide multidisciplinary research effort to find and develop new drugs and vaccines, and involve collaboration between pharmaceutical companies, university and institute-based research groups and clinical groups working in field trials.

Training

IIP offers both formal and informal training courses and facilities for visiting workers. Training is particularly orientated towards scientists and extension workers in developing countries. Courses of six weeks duration, on the identification of helminth parasites or plant parasitic nematodes of economic importance, are offered in alternate years to groups of fifteen participants.

Supervised individual study for periods of up to 12 months is offered by IIP's specialists and facilities are available for postgraduate studies for higher degrees or as part of a higher degree course. IIP is an associated Institute of the University of Reading and has collaborative projects with the University of London. Visiting workers in relevant fields of research are welcome to use the facilities and expertise available at IIP.

Collections

The IIP library offers a specialist collection of over 6600 books, 231 serial titles and over 28,000 reprints on helminthology, protozoology and plant nematology available to outside users. Computer terminals permit on-line retrieval from the world's major databases, including CAB ABSTRACTS, and offers a photocopying service as part of CABI Document Delivery Service. IIP collaborates with the Information Services of CABI in the production of books and journals in its fields.

Further details

Please write or telephone for our current brochure or further information on specific services you require.